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High Optical Power for New 3D Camera

[New OSRAM infrared laser diode used in 3D camera for industrial applications](#)

A new, high power fast laser diode from OSRAM Opto Semiconductors provides light for the new 3D camera from Swedish manufacturer FOTONIC. The component, which facilitates range finding of moving objects with good depth resolution at high-speed video rates, has been developed specifically for 3D cameras like the FOTONIC C70.

The laser diode provides high optical power of approximately 0.5 W, even when in continuous wave operation. With a wavelength of about 845 nanometers, the light is barely visible to the human eye but is well within the sensitivity range of the camera chip. The sturdy metal package of the component ensures reliable operation in industrial applications.

FOTONIC's C70 three-dimensional camera superimposes a two-dimensional picture with information on the range and surface profile of an object. Industrial applications for this type of system include gauging of fluid levels, grading of objects according to size or shape, and obtaining reliable stereoscopic information for control of robot arms.

Fast modulation yields high resolution

The FOTONIC C70 camera is based on a CMOS sensor and employs the principle of time-of-flight measurement. When integrated into the camera, the laser diode transmits a light pulse that is reflected back from the target. Each of the 120x160 pixels of the camera chip records the distance to the object by measuring a respective phase shift compared to the emitted light pulse. The precision of this distance measurement and the range of the sensor increase with the modulating frequency of the light source. Due to their fast switching times of only a few nanoseconds, laser diodes are particularly well suited for this application. Developed specially for this kind of 3D camera, the laser diode is modulated with 44 MHz and, within the range of 0.1 to 7 meters, enables the camera to measure distances with an accuracy of up to 30 mm. For OSRAM Opto Semiconductors, it is the first application of a laser diode in a 3D sensor of this type. "Together with OSRAM, we've managed to increase the performance of our FOTONIC C70

Camera,” commented Rickard Åström of FOTONIC. “We plan to use this component in future generations of our camera.”

Dr. Jörg Heerlein, marketing manager for pulsed laser diodes at OSRAM Opto Semiconductors, predicts a growing market for such applications: “Three-dimensional sensor technology is becoming more widespread in industrial applications,” he said. “This technology is also gaining interest in the consumer market and the automobile sector as well. For example, it is being used for touch screens and in sensors for accident avoidance systems in automobiles. We designed this new laser diode specifically for 3D sensor technology.” OSRAM Opto Semiconductors will present the laser together with the FOTONIC C70 3D camera at the Measurement Fair SENSOR+TEST 2011 in Nuremberg, Germany, June 7-9, in Hall 12, Stand 12-233.



The FOTONIC C70 3D camera produces relief images that yield the distance between object and camera for each pixel. Fast and powerful light sources such as OSRAM Opto Semiconductors’ new pulsed laser diode facilitate particularly precise range finding. Image: FOTONIC

<http://www.osram-os.com/press>

ABOUT OSRAM OPTO SEMICONDUCTORS

OSRAM is part of the Industry sector of Siemens and one of the two leading lighting manufacturers in the world. Its subsidiary, OSRAM Opto Semiconductors GmbH in Regensburg (Germany), offers its customers solutions based on semiconductor technology for lighting, sensor and visualization applications. OSRAM Opto Semiconductors has production sites in Regensburg (Germany) and Penang (Malaysia). Its headquarters for North America is in Sunnyvale (USA), and for Asia in Hong Kong. OSRAM Opto Semiconductors also has sales offices throughout the world. For more information go to www.osram-os.com.

ABOUT FOTONIC

FOTONIC is a company with a 100 head strong team for R&D and manufacturing focused on the use of time-of-flight (TOF) technology for three-dimensional imaging. Based on 35-years experience and knowledge in the fields of optronics and photonics, the company offers cameras that enhance existing applications or open the door to new ones. Serving all fields, their cameras for 3D imaging and positioning are developed to meet the highest demands of the industrial segment. Combining high performance and reliability, their range cameras are set in a robust hardware casing that enables top-notch performance also in challenging and tough environments. FOTONIC is based in Stockholm, Sweden. For more information, go to: <http://www.FOTONIC.com>

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